Summary of Cancer Incidence and Mortality for Zip Code 29150 (Sumter, SC)

Cancer Incidence in Zip Code 29150

The first step in the analysis was to look at the number of new cancer cases diagnosed in the zip code and compare this to the number of cancer cases expected in the zip code. This first step determines if there is anything unusual in the observed cancer patterns in the area. The number of "expected" cancer cases is calculated by using state cancer rates and applying them to the population of the zip code.

Table 1 shows what types of cancer were diagnosed in zip code 29150 from 1996-1999. The table also shows how many cases of each type of cancer were expected. Zip code 29150 had more cases of cancer than expected; however, statistical tests determined that this was not a significant excess of cancer cases. The most common types of cancer occurring in the zip code were prostate, lung, female breast, and colorectal cancers. These four types of cancer are also the most common cancers occurring across all of South Carolina.

Looking at the specific cancer sites, we see that there are three types of cancer **(esophagus, liver and prostate)** where the number of cases occurring was significantly higher than expected. These cancers have known risk factors that are associated with a person's lifestyle, what are called "lifestyle risk factors," and genetic risk factors. It is also important to note also that different types of cancer are like different diseases. All cancers are not the same, the risk factors for each are different.

Esophageal cancer is three times more likely to occur in men than women, and risk increases as people age. African-Americans are also three times more likely than whites to develop esophageal cancer. Alcohol and tobacco use increase risk, and if a person both uses tobacco and drinks alcohol the risk is further increased. The risk of esophageal cancer is also raised if a person suffers from Barrett's esophagus, which is continued reflux of fluid from the stomach into the lower esophagus[1].

There are several risk factors that increase a person's risk for developing liver cancer. These risk factors include chronic infection with Hepatitis B or C or having cirrhosis. Also, occupational exposure to vinyl chloride has been shown to increase liver cancer risk[1].

The causes of prostate cancer are not well known, however, researchers have determined a few risk factors that increase a man's chances of developing this disease. These risk factors include increasing age, a diet high in fat, a lack of physical activity, and family history of the disease. Also, prostate cancer occurs almost 70% more often in African-Americans as it does in white American men[1].

Cancer Deaths in Zip Code 29150

To assess cancer deaths in the zip code, cancer mortality data from 1996 through 2000 were used. This is the most current death data available. The same process used to analyze new cancer cases was also used to analyze cancer deaths. Table 2 shows the number of cancer deaths that occurred and the number of cancer deaths expected in the zip code. Zip code 29150 had more cancer deaths than expected.

Statistical tests showed that zip code 29150 had a significant excess of cancer deaths. Two types of cancer death **(esophagus and liver)** were significantly elevated in this zip code. As stated earlier, these two types of cancer were also elevated in incidence. Survival rates for esophageal and liver cancers are lower than survival rates for many other types of cancer. Esophageal cancer has a 5-year survival rate of 12 percent, while the 5-year survival rate for liver cancer is only 5 percent. These cancers are so rapidly fatal that early detection is quite uncommon. Therefore, these cancers that were in excess were most likely diagnosed in later stage of disease, when there is less likelihood of survival.

Conclusions

To summarize, zip code 29150 had more cases of cancer than expected; however, this excess was not statistically significant. Esophageal, liver, and prostate cancer cases were significantly elevated.

Looking at cancer deaths, zip code 29150 had a statistically significant excess of cancer deaths. Esophageal and liver cancer deaths were significantly elevated in this zip code. We know that these types of cancer have "lifestyle" and genetic risk factors associated with them.

A cancer cluster exists when the number of cancers that occurs is more than would be expected by chance. A cancer cluster is more likely to involve rarer cancers, such as bladder and brain, rather than more common cancers, like breast or prostate. Also, a cancer cluster would occur with one specific type of cancer rather than having excesses in many different types of cancer. Overall, we do not see any evidence of cancer clustering or of cancers resulting from environmental exposures in these zip codes.

For questions about this report, please contact Laura Sanders at the SC Central Cancer Registry.

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References

1. American Cancer Society, 2001. www.cancer.org

Information on cancer incidence provided by the SC Central Cancer Registry, Office of Public Health Statistics and Information Services, SC Dept. of Health and Environmental Control.

Information on cancer mortality provided by the Division of Biostatistics, Office of Public Health Statistics and Information Services, SC Dept. of Health and Environmental Control.

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Table 1. Analysis of New Cancer Cases in Zip Code 29150, 1996-1999

Cancer Site	Observed No. of Cases	Expected No. of Cases	Observed/Expected	Chi-SquareTest*
Prostate	**141**	**118.8**	**1.19**	**4.17**
Lung/Bronchus	125	122.7	1.02	0.04
Breast (Female)	112	116.8	0.96	0.20
Colon/Rectum	85	94.3	0.90	0.92
Oral/Pharynx	30	21.3	1.41	3.54
Bladder	27	32.5	0.83	0.93
Pancreas	26	18.8	1.39	2.80
Melanoma	22	24.5	0.90	0.26
Kidney/Renal Pelvis	21	19.1	1.10	0.20
Non-Hodgkin's Lymphoma	20	25.5	0.78	1.20
Uterus	19	19.5	0.97	0.01
Esophagus	**18**	**10.3**	**1.74**	**5.72**
Leukemia	18	15.7	1.15	0.34
Liver	**13**	**5.6**	**2.32**	**9.72**
Ovary	13	13.2	0.98	0.00
Cervix	12	10.1	1.18	0.34
Stomach	10	13.2	0.76	0.76
Multiple Myeloma	8	9.1	0.88	0.14
Larynx	7	9.1	0.77	0.48
Brain/CNS	5	10.0	0.50	2.48
Thyroid	5	7.2	0.70	0.66
All Sites	794	776.8	1.02	0.38

Excludes in situ cases of cancer to allow for comparison.

Excludes cancer sites with less than 5 cases of cancer expected due to the unreliability of statistical tests based on small numbers.

*The Chi-Square Statistical Test allows us to determine if the difference between what is observed and what is expected is significant. If the value is greater than 3.84, then we are 95% confident that the observed number of cases is significantly different from the expected number of cases.

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Table 2. Analysis of Cancer Deaths in Zip Code 29150, 1996-2000

Cancer Site	Observed No. of Deaths	Expected No. of Deaths	Observed/Expected	Chi-SquareTest*
Lung/Bronchus	143	137.2	1.04	0.25
Colon/Rectum	50	50.3	0.99	0.00
Prostate	46	34.9	1.32	3.55
Breast (Female)	44	36.4	1.21	1.60
Pancreas	33	27.6	1.20	1.07
Non-Hodgkin's Lymph	24	18.0	1.33	1.98
Leukemia	23	18.0	1.28	1.38
Esophagus	**18**	**11.0**	**1.63**	**4.38**
Stomach	18	12.6	1.43	2.28
Liver	**17**	**9.2**	**1.84**	**6.53**
Multiple Myeloma	17	11.6	1.46	2.47
Ovary	17	11.8	1.44	2.31
Oral/Pharynx	13	8.8	1.47	1.97
Kidney/Renal Pelvis	11	9.8	1.12	0.15
Brain/CNS	9	11.2	0.80	0.43
Bladder	7	10.1	0.69	0.94
Melanoma of Skin	7	5.1	1.37	0.69
Uterus	5	6.1	0.82	0.19
All Sites	**561**	**488.4**	**1.15**	**10.79**

Excludes cancer sites with less than 5 cancer deaths expected due to the unreliability of statistical tests based on small numbers.
*The Chi-Square Statistical Test allows us to determine if the difference between what is observed and what is expected is significant. If the value is greater than 3.84, then we are 95% confident that the observed number of deaths is significantly different from the expected number of deaths.

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